NLM Informationist Program Embeds Information Professionals into Scientific Research Teams

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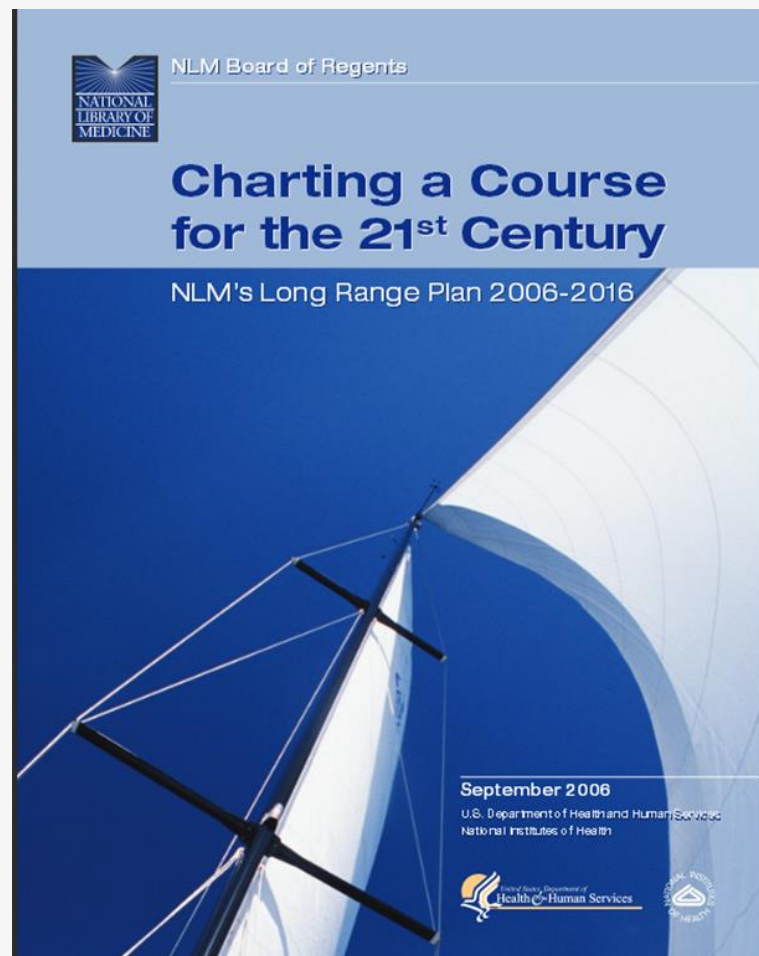**NIH** U.S. National Library of Medicine

Overview

- New grant program: NLM Administrative Supplements for Informationist Services in NIH-funded Research Grants
  - Concept
  - Mechanics
  - Examples
  - Lessons to date

NLM Long Range Plan, 2006-16

- Goal 4: A strong and diverse workforce for biomedical informatics research, systems development and innovative service delivery
  - Rec 4.2. Support training programs that prepare librarians to meet emerging needs for specialized information services
    - NLM Associate Fellows
    - Disaster information Specialist
    - **Informationists**

NLM Board of Regents

NATIONAL LIBRARY OF MEDICINE

Charting a Course for the 21st Century

NLM's Long Range Plan 2006-2016

September 2006
U.S. Department of Health and Human Services
National Institutes of Health

Health & Human Services

Informationists, embedded librarians, in-context information specialists

- " The Informationist: a New Health Profession?" Annals of Internal Medicine, Vol. 132, no 12, June 2000

- Joint MLA-NLM Conference in 2002 on the Informationist Concept

- NLM fellowship awards program, 2003-8: supported subject matter coursework, practicum in chosen setting, research project – 9 awards

- Grant program: NLM Administrative Supplements for Informationist Services in NIH-funded Research Projects, 2012, 2014

NLM Informationist Supplements

- Stated Purpose of the supplement: "…to enhance storage, organization, management and use of electronic research data… in clinical, translational, biomedical research"

- Experience: graduate training and practical experience in library/information sciences and a scientific discipline

- Job: Informationists work as team members with research scientists and health professionals and are sometimes called in-context or 'embedded' information specialists

Collaborating Partners

- Other NIH Institutes sign on to the announcement, specify which grant mechanisms are eligible

  - The National Library of Medicine, in conjunction with NIH Institutes and Centers (ICs) named above, announces an Administrative Supplement opportunity available to eligible NIH awardees with active R01 grants and, in some cases, with active P01, P30, P50 and U01 grants (see details below).

Examples of Informationist Roles (from the Funding Announcement)

- Critical appraisal and preparation of systematic reviews
- Assessing information needs in the research team
- Identifying research data archives
- Indexing and classification
- Data curation, knowledge mapping
- Information retrieval and visualization strategies
- Integrating knowledge resources into the Electronic Health Record
- Suggesting approaches for data management
- Defining parameters of a data management strategy
- Evaluate outcomes and impact of research
- Coordinate required submissions, such as those for PubMed Central and Clinical Trials.gov

Grant Application Components

- Must be submitted by the PI of the parent grant
  - Description of the parent grant
  - Description of the proposed Informationist work, the qualifications of the Informatinionist and expected value to the parent project
  - Evaluation plan for assessing value of Informationist to the parent project
- Budget of up to $25K direct plus F&A per year for 1 or 2 years
- Letter of support from Library Director or Supervisor of the Informationist

Requirements of the award

- Informationist work must be in scope for the grant goals
- Cannot be 'routine' services provided by the library already
- Informationist must be incorporated into the research team
- PI must provide annual progress reports on the work performed with supplement $
- In final report, PI must characterize and document the value of the Informationist to the research team

Receipt and Review

- Supplement applications are submitted through the NIH eRA system
  - signed by the PI & his/her sponsored projects office
- Supplement applications are reviewed by grant program staff in NLM Extramural Programs
  - Criteria: meets stated goals of the program; meaningful contribution to the research
  - Program officers of the grantee applicants are invited to participate and comment
  - Final decisions made by NLM
  - For those not chosen, NLM solicits co-funding by parent Institute

NLM Informationist Supplements, 2012

- FOA said 5 awards to be made. Five other Institutes participated (Aging, Cancer, Dental, Deafness, Eye)

- 19 applications received, 8 awards made, 2 of them co-funded by other Institutes; 15 librarians involved

- http://www.nlm.nih.gov/ep/InfoSplmnts.html #2012

Examples, Informationist Supplements 2012

- ***THz Sensing of Corneal Hydration.*** To develop a THz imaging system and map hydration of the cornea. (award to UCLA by NEI) ***Informationist role***: Improve workflow for managing research data, identify appropriate metadata standards and ontologies, recommend a preservation strategy. Two informationists.

- ***Promoting Breast Cancer Screening in Non-Adherent Women.*** Randomized trial comparing outreach approaches. (award to U Mass by NCI). ***Informationist role:*** Provide metadata, database design and retrieval advice, evaluate existing tracking system, support public access submission. One informationist.

- ***Management of Cochlear Implant Patients with Contralateral Hearing Aids.*** To develop data-based tools to help clinicians coordinate fitting and follow up of implants.(to NYU from NIDCD) ***Informationist role:*** Recommend strategy to integrate existing data set with a unique data set from an external researcher, restructure the data model, refine reporting and query tool (NYU). Two Informationists.

NLM Informationist Supplements, 2014

- FOA said 5 awards to be made; 12 other Institutes participated NCI, NEI, NIA, NIAAA, NIAMS, NIBIB, NIDCD, NIDCR, NIEHS, NIMH, NINDS, NINR)

- 22 applications received; 10 awards made, 4 awards co-funded by other Institutes. 17 librarians involved

- http://www.nlm.nih.gov/ep/InfoSplmnts.html #2014

Examples, Informationist supplements, 2014

- *Knowledge Environment for Neuroimaging in Child Psychiatry*. To extend the CANDIShare data network and highlight utility of the datasets. (award to U Mass by NIMH). *Informationist role*: Support sharing of neuroimaging data, create data set unique identifier to trace use and re-use. One informationist.

- *Age Dependent Mechanical Ventilator-Induced Inflammation: Modeling and Experiments*. To develop ventilator-induced inflammation by developing multi-scale hybrid computaltional models. (award to VCU by NIA). *Informationist role*: Form interlibrary coordination team to support data management and collaboration among project researchers housed in 3 different schools. Four informationists.

- *Synaptic Basis of Perceptual Learning in Primary Auditory Cortex.* To undertake electrophysiological and behavioral experiments in rats to study interactions among synaptic inputs and neuromodulators*. (award to NYU by NIDCD) *Informationist role:* Establish a data model and data dictionary for searching and sharing data from a complex set of surveys including cognitive/medical and imaging data from experiments. Two informationists.

- *Cell Adhesion Molecules in Autism: a Whole- brain Study of Genetic Mouse Models.* To understand circuit, cellular and molecular mechanisms by which autism genes affect brain development and function. (award to Cold Spring Harbor Laboratory by NIMH) *Informationist role:* Implement a knowledge retrieval and archiving system for serial two-photon data. One informationist.

Publicity about Program

- Funding Announcement in the NIH Guide to Grants & Contracts
  - PA 12-158 Apr 11, 2012
  - PA 13-279 July 19, 2013
- Announcements via health sciences librarian networks and the National Network of Libraries of Medicine
- Special issue of Journal of E-Science Librarianship, Vol. 2, issue 1, 2013
  - "Informationist Careers for Librarians – a brief history of NLM's Involvement – letter to editor
  - 1 video article, 4 E-science in Action articles

AAHSL 2013 Webinars

- Three webinars presented talks from informationists who received 2012 awards, and from two involved library directors
  - Talk 1, Oct 11: informationist talks by Victoria Goode, JHU; Sally Gore,U Mass; Aileen McCrillis, NYU; Rick Ralston, Indiana U) https://webmeeting.nih.gov/p4s9tpjmxpn/
  - Talk 2, Oct 17: library directors (Elaine Martin, U Mass, Neil Rambo, NYU) https://webmeeting.nih.gov/p4g7ybs77es/
  - Talk 3, Oct 25: more informationists talks by (Theodora Bakker, NYU; Donna Berryman, U Rochester, Lisa Federer, then at UCLA, but now at NIH) https://webmeeting.nih.gov/p6av0c487vy/

Progress Report from 2012 award

- Presentation to NLM Board of Regents Feb 2014 about 2012 informationist supplement to R01 DC-011329, "Clinical Management of Cochlear Implant Patients and Contralateral Hearing Aids".
  - Presentation by Informationists Theodora Bakker and Karen Hanson with video inserts by Neil Rambo, Library Director at NYU, Mario Svirsky and Arlene Neuman, co-Principal Investigators of the grant. At 3 hr 39 minutes, Bakker is talking about the work (full presentation lasts 45 minutes).
  - http://videocast.nih.gov/summary.asp?Live=13657&bhcp=1

Lessons Learned: Informationists

- Scaling the service to an entire organization
  - What business model makes sense?
- Disciplinary training of librarians
  - May need additional coursework
- Access to technology support and infrastructure
- Fitting into an existing research team
  - Sociology and teamwork
  - Proving the value of your expertise
- Protecting the time from routine demands

Needed: Education about Data Management

- Video from NYU 4 minutes 41 secs

- By Karen Hanson, Alisa Surkis, Karen Yacobucci. Karen and Alisa are funded by NLM informationist supplements

http://www.youtube.com/watch?v=N2zK3sAtr-4

Major Challenges of Biomedical Big Data

– NIH Big Data to Knowledge (BD2K) program

- Finding and gaining access to data and software tools
- Standardizing data and metadata
- Meeting policy requirements for sharing data and software developed with federal funds
- Organizing, managing, and processing Biomedical Big Data
- Developing new methods for analyzing & integrating biomedical data
- Training researchers to operate effectively in the Biomedical Big Data environment

Closing Thoughts

- Increased demand on researchers for data sharing means the organization and curation of research data need professional attention

- Benefit to research libraries
  - Put the expertise where the action is
  - Stronger evidence for value
  - Form new partnerships

- Benefit to research sponsors
  - Help existing researchers meet data sharing goals
  - Foster cross-agency collaboration